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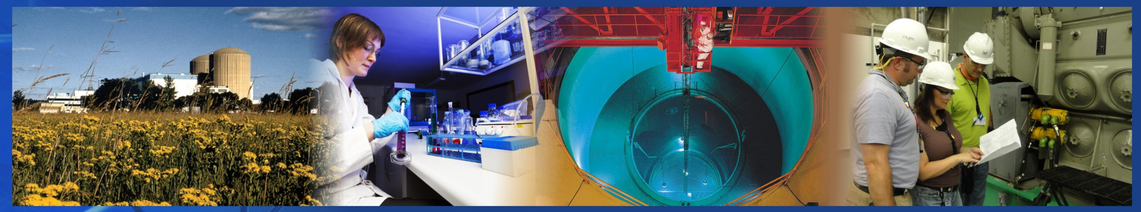
RIC 2015



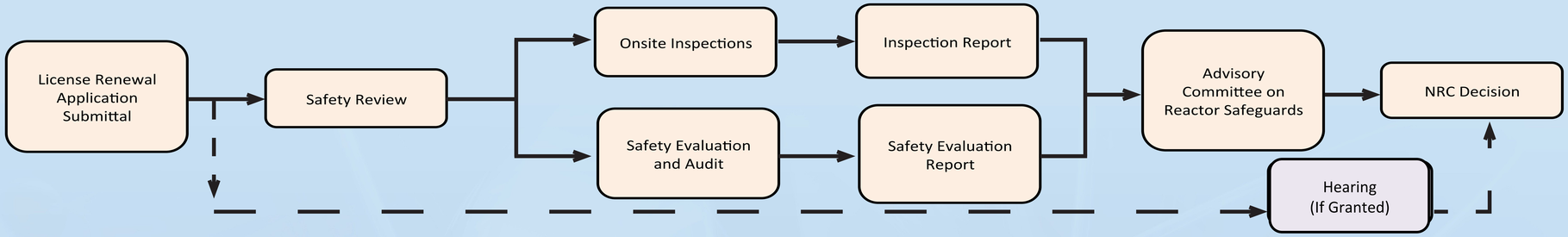
Addressing Aging Management Issues during the License Renewal Process

Long-Term Operation in the United States

The Atomic Energy Act and U.S. Nuclear Regulatory Commission (NRC) regulations limit the operation of commercial power reactors (licenses) to 40 years; however, they also permit licenses to be renewed for an additional 20 years of operation.

Title 10 of the *Code of Federal Regulations*, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," requires an applicant for a renewed license to demonstrate that the effects of aging on structures and components will be managed to maintain an acceptable level of safety during the additional 20 years of operation.

License Renewal Safety Review Process



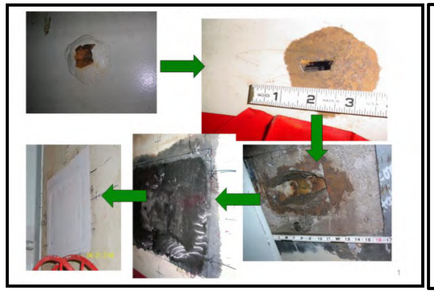
License Renewal Application Contents

A) Integrated Plant Assessment
   i) Identification of systems, structures, and components subject to aging management
   ii) Scoping and screening methodology
   iii) Aging management review
B) Current licensing basis changes during NRC review of application
C) Evaluation of time-limited aging analyses
D) Final Safety Analysis Report Supplement (aging management programs, license renewal commitments)

License Renewal Safety Review

The Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants provides the basis from which to evaluate applicant aging management programs and activities for the additional 20 years of operation. The Generic Aging Lessons Learned Report contains the staff's generic evaluation of existing aging management programs that may be adequate to manage the aging effects of structures and components. ***The license renewal review process results in the identification and resolution of technical issues associated with aging management of components within the scope of license renewal and important for safety. The NRC staff safety review of license renewal applications and its conclusions are documented in safety evaluation reports that are made available to the public.***

Aging Management Issues Identified during the License Renewal Safety Review Process



Containment Liner through Wall Corrosion

Potential Safety Issue: The containment liner plate can lose leak-tightness and could lead to radioactive isotopes potentially leaking out into the environment during an accident.

Recommended Generic Aging Lessons Learned Report Aging Management Program: ASME Section XI, Subsection IWE Program

Corrective Actions/Process Results:
Removed and replaced affected area.
Conducted visual examinations of 100 percent of the accessible liner area.
Modified visual examination procedures to better identify corrosion issues in the future.

Drywell Shell Loss of Material due to General, Pitting, and Crevice Corrosion

Potential Safety Issue: The drywell shell can lose structural and leak-tight integrity, which could lead to radioactive isotopes potentially leaking out into the environment during an accident.

Recommended Generic Aging Lessons Learned Report Aging Management Programs: ASME Section XI, Subsection IWE, and Protective Coating Monitoring and Maintenance Programs

Corrective Actions/Process Results:
Monitored conditions through periodic inspections.
Collected random ultrasonic testing samples taken to identify loss of material at other areas of the drywell shell.
Additional ultrasonic testing samples will be taken to verify the drywell shell condition.

Selective Leaching within Susceptible Aluminum Bronze Alloys

Potential Safety Issue: Piping and other components can fail because of the selective leaching phenomenon and potentially prevent adequate cooling water flow to safety-related plant components and systems.

Plant-Specific Aging Management Program: Selective Leaching of Aluminum Bronze Program

Corrective Actions/Process Results:
Perform periodic walkdowns to detect external visual evidence of leakage.
Perform analysis for structural integrity.
Replaced degraded components during refueling outages.

Corrosion of Buried Piping

Potential Safety Issue: Inadequate cooling water flow to safety-related components can result from corrosion-caused failures of buried piping.

Recommended Generic Aging Lessons Learned Report Aging Management Program: Buried and Underground Piping and Tanks, license renewal interim staff guidance 2011-03

Corrective Actions/Process Results:
Replace and reroute portions of the buried piping before the period of extended operation.
Conduct soil sampling.
Perform additional inspections if soil is corrosive.

Learn more at: **http://www.nrc.gov/reactors/operating/licensing/renewal.html**